

ADAPTIVE TIME STEP CONTROL FOR THE GENERALISED- α METHOD

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Abstract. The most important requirements for the numerical solution of fluid and structure problems are accuracy and efficiency. Therefore adaptivity in space and time is advantageous [1]. For obtaining a stable numerical solution of fluid and structure problems implicit or linear-implicit methods should be used [4,5]. In this talk we concentrate on the generalised- α method for first order problems [3] and second order problems [2].

A good time integration method needs an error estimator for increasing efficiency. This error estimator suggests a new time step size to reach a given accuracy. If the time step size is too small a lot of unnecessary computational work has to be done. Otherwise, if the time step size is too large, the results become less accurate.

In this talk we analyse the generalised- α method and develop with the help of this analysis an adaptive method. Finally we apply this scheme on several test problems.

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